Polymicrobial interactions of Candida albicans and its role in oral carcinogenesis

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Abstract

The oral microbiome is composed of microorganisms residing in the oral cavity, which are critical components of health and disease. Disruption of the oral microbiome has been proven to influence the course of oral diseases, especially among immunocompromised patients. Oral microbiome is comprised of inter-kingdom microorganisms, including yeasts such as Candida albicans, bacteria, archaea and viruses. These microorganisms can interact synergistically, mutualistically and antagonistically, wherein the sum of these interactions dictates the composition of the oral microbiome. For instance, polymicrobial interactions can improve the ability of C albicans to form biofilm, which subsequently increases the colonisation of oral mucosa by the yeast. Polymicrobial interactions of C albicans with other members of the oral microbiome have been reported to enhance the malignant phenotype of oral cancer cells, such as the attachment to extracellular matrix molecules (ECM) and epithelial-mesenchymal transition (EMT). Polymicrobial interactions may also exacerbate an inflammatory response in oral epithelial cells, which may play a role in carcinogenesis. This review focuses on the role of polymicrobial interactions between C albicans and other oral microorganisms, including its role in promoting oral carcinogenesis.

Keywords

Author Keywords: Candida albicans; oral carcinogenesis; oral microbiome; polymicrobial interactions
KeyWords Plus: EPITHELIAL-MESENCHYMAL TRANSITION; STREPTOCOCCUS-MUTANS; CANCER; CYTOKINES; IL-6; INFLAMMATION; HEAD; METASTASIS; CELLS

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